REMARKS

Claims 1, 3-5 and 7-10, all the claims pending in the application, stand rejected. Claims 1 and 5 have been amended.

Claim Rejections - 35 U.S.C. § 112, Paragraph 1

Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention. This rejection is traversed.

The Examiner notes that claims 1 and 5 recite that the "projecting amount of the high hardness particles increases with the elasticity of the elastic material when a member to be fed is fed." The Examiner states that, in his opinion, this suggests that the elasticity of the elastic material and the projection of the particle increases when a member is to be fed. The Examiner also opines that the phrase suggests that the projection of the particles increases when the members are fed, and questions how this would occur since the fed articles put a force onto the belt and would actually tend to push the articles in.

The claimed feature identified by the Examiner as the basis for his rejection finds clear support in the specification at pages 4-7 with regard to a first embodiment of the invention. It is apparent from this teaching that high hardness particles are embedded in an elastic belt material having a particular composition, as recited at page 5, lines 2-7. Examples of the high hardness particles are identified at page 5, lines 8-17. The belt is made in accordance with the process disclosed at pages 14 and 15. As would be understood by one skilled in the art, when the elastic material is stretched, (1) the material decreases in thickness, and (2) the embedded high hardness

particles will project outwardly from the surface. Where the stretching of the article is due to the weight of a member being fed, and the member has a soft or flexible surface, the particles will be projected into the material, as disclosed at page 6, third full paragraph. On the other hand, where the feeding member has a hard surface, the particles will still tend to be projected but, in fact, the projection will be resisted by (or even forced into) the elastic material by the member.

Thus, because at least under the condition that the material is soft, the claim is accurate in stating a characterizing feature of the feed belt. Applicant submits that the claim further states that the projecting amount varies according to pressure applied to the belt by the member and varies with the shape or hardness of the member. Thus, for an extremely hard feeding member, there may be little or no projection. Applicants respectfully submit that, on the basis of this explanation, the rejection should be withdrawn.

Claim Rejections - 35 U.S.C. § 112, Paragraph 2

Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is traversed.

The Examiner comments that claims 1 and 5 are indefinite because the preamble recites the subcombination of a feed belt, but the body of the claim recites the combination of a feed belt and its associated feed system. In particular, the Examiner refers to pressure applied to the belt from an "external source," the pressure varying with the shape or hardness of the member to be fed. We believe that this objection may be overcome by changing the phrase "external source" to "members". Applicant will amend the claims to clarify the invention in this regard.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frandsen (4,193,313) in view of Arnold (5,326,411) and Saylor, Jr. (5,787,655). This rejection is traversed.

In framing the rejection, the Examiner comments that Frandsen shows an elastic material and high hardness particles, which are dispersed throughout and projecting from the elastic material, as seen in Fig. 3. The Examiner takes the position that it is inherent to have the projection increase with increasing elasticity. Also, the Examiner states that an external force pushing from behind the belt, as in Fig. 4B, would cause the size of the projections to vary. The Examiner notes that Frandsen does not explicitly show a belt hardness of 15-90 or particle size in the range of 3-300 micrometers or particle density in the range of 10-70% by weight. The Examiner looks to Arnold for such teaching of a sure hardness of 15-90 and concludes it would be obvious to modify Frandsen to have an elastic material with the hardness of 15-90. The Examiner looks to Saylor for a teaching of particles with the size of 3-300 micrometers and a weight density of 10-70%. Again, the Examiner concludes it would be obvious to one of ordinary skill in the art to use particles with such characteristics in order to generate a sufficient coefficient of friction.

Frandsen is particularly concerned with a belt material that is "ultra high molecular weight high density polyethylene." Specifically, the molecular weight is between 3,000,000 and 5,000,000, as distinguished from most polyethylenes which are only 10% of that amount. The goal in Frandsen is to have a highly abrasion resistant and non-adhesive material, so that it can

be used to transport delicate tobacco leaves. The embodiment of Fig. 3 embeds glass beads 36 into the surface in order to roughen the surface.

Frandsen clearly teaches away from a more flexible belt material. Accordingly, one of ordinary skill reading Frandsen would not rely upon a material as taught in Arnold, since the more flexible material of Arnold is not favored for Frandsen's application. Further, the size of the holes that contain the glass beads is substantially the same as the thickness of the material. This type of belt is clearly different from that of the present invention and would never permit any extension of the embedded beads to project outwardly from the surface. If the belt stretched, the beads would pop out of their socket. Nothing in this teaching would suggest making the belt thicker and the beads smaller, and adjusting the elasticity of the belt in order to achieve the claimed structure. Applicants respectfully submit that any modification of this combination of references in an attempt to achieve the results of the present invention would have to involve the impermissible use of hindsight.

Moreover, the references are from wholly different environments, as Arnold is directed to a large agricultural belt for carrying heavy articles, like bales of hay, and has no teaching related to imbedded particles. Saylor et al is not even concerned with a belt, but with a decorative floor cover. There is no motivation or teaching to suggest their combination.

Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Arnold in view of Saylor, Jr. This rejection is traversed.

In this case, the Examiner has removed the reference to Frandsen and relies solely upon Arnold and Saylor in formulating the rejection. The Examiner admits that Arnold does not show

a belt with elastic based material and a particle-containing layer. Indeed, it is not surprising that particles would not be included since the purpose of Arnold's belt is for agricultural applications, such as hay bailers. There is no need for adding a source of friction or otherwise a feature useful for transporting delicate materials.

Saylor, on the other hand, is concerned with a "decorative slip-resistant cover system" of the type used for flooring. There is no teaching or suggestion within the reference that the floor mat created with the Saylor materials could be adapted to use in a belt. Accordingly, this rejection should be withdrawn.

Claims 1, 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Frandsen in view of Arnold and Mashimo et al (4,642,082). This rejection is traversed.

In formulating the rejection, the Examiner again comments that Frandsen teaches a belt with high hardness particles in Fig. 3, and admits that there is no explicit teaching of belt hardness, particle size or density. The Examiner looks to Arnold to remedy a portion of this deficiency. As already explained, Arnold and Frandsen are incompatible and have teachings in completely opposite directions.

Mashimo et al does not remedy this deficiency and is merely cited to show particles with a size of 3-300 micrometers and a weight density of 10-70%. For the same reasons given with respect to Saylor, even though Mashimo is concerned with a belt and not with flooring, there is no incentive to modify Frandsen with the ceramic powder disclosed in Mashimo. In fact, the belt in Mashimo for power transmission in an engine or the like, rather than for conveyance of materials. Accordingly, one of ordinary skill would not look to Mashimo as a candidate for

combination with the belt of Frandsen and the heavy conveyance belt of Arnold in order to achieve the feed belt for more delicate articles, such as cash and credit cards, of the present invention.

Claims 1, 4, 5 and 8-10 are rejected under 35 U.S.C. § 103 as being unpatentable over Mashimo et al. This rejection is traversed.

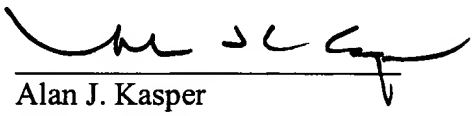
Again, Mashimo is directed solely to a power transmission belt and not to a feed belt as claimed. Nothing in the reference would teach or suggest the application set forth in the claims. Indeed, the power transmission belt is a wholly distinct art from that of a feed belt. As explained at col. 1, lines 12-60, such belts are used in conjunction with grooved pulleys subject to a forced transmission between the belt and pulley being effected by a frictional engagement of the belt with the pulley surface. The belts should have high elasticity, high wear resistance in the widthwise direction and desirable depending resistance in the longitudinal direction. The belt also should have high wear resistance but low heat generation. Typically, these belts are "V-belts" as illustrated in Figs. 1 and 2. While the belt may have a flat embodiment, as illustrated in Fig. 3, the belts typically are ribbed, as illustrated in Figs. 2 and 4 in order to provide the needed flexibility. However, nothing in this teaching of a "ribbed" or "toothed" belt, or even a flat belt for a power transmission, would suggest use of the same material and composition in a flat feed belt for feeding materials, as claimed.. Accordingly, this rejection should be overcome.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) A feed belt, adapted to feeding members comprising at least one of papers, tickets, bank notes, plastic or paper cards and coins, comprising:

an elastic material having a hardness corresponding to rubber hardness 15 to 90;

10 to 70 percent by weight of high hardness particles dispersed throughout the elastic material, said high hardness particles having a particle diameter of 3 to 300 μm;

characterized in that the high hardness particles project from a feed surface of the belt, where the projecting amount of the high hardness particles increases with the elasticity of the elastic material when a member to be fed is fed, and the projecting amount of the high hardness particles varies according to the pressure applied to the belt from [an external source] said member, where the pressure applied to the belt from [an external source] the member varies with the shape or hardness of the member to be fed.

5. (Amended) A feed belt, adapted to feeding members comprising at least one of papers, tickets, bank notes, plastic or paper cards and coins, comprising:

a base material layer formed of a first elastic material having a hardness corresponding to rubber hardness 15 to 90;

a high hardness particle containing layer comprising:

a second elastic material having a hardness corresponding to rubber hardness 15 to 90;

10 to 70 percent by weight of high hardness particles dispersed throughout the second elastic material, said high hardness particles having a particle diameter of 3 to 300 μm;

characterized in that the high hardness particles project from a feed surface, where the projecting amount of the high hardness particles increases with the elasticity of at least the second elastic material when a member to be fed is fed, and the projecting amount of the high hardness particles varies according to the pressure applied to the belt [from an external source] by the member, where the pressure applied to the belt from [an external source] the member varies with the shape or hardness of the member to be fed.